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Edited by JOHN BARTLETT.

STEREOSCOPIC PHOTOGRAPHY.

IT is with feelings of no ordinary satisfaction that we have observed a return of interest in Stereoscopic Photography.

We say that this affords us pleasure, because we have seen how often large sums of money and much labor are bestowed upon the art of photography in other directions, with but small returns in pleasure or quality of work to show for the expenditure.

Without consuming space in "odorous comparisons" between stereoscopic photography and other departments of the art, let us briefly enumerate some of the advantages of the former which will render it valuable.

First, the very natural and life-like effect of the pictures. We have often seen persons handle stereoscopic views with the uttermost indifference until the instrument was put into their hands, when the indifference immediately changed to the deepest interest, often accompanied by loud exclamations of pleasure. An operator who has had a little experience in selecting subjects for the stereoscopic camera will often be able to make very interesting pictures out of the most unpromising subjects, so that the picture which to the eye alone looks like a confused mass of objects without shape or definite tint, becomes not merely plain and easy to understand, but highly interesting when viewed in the stereoscope, owing to the realistic manner in which the several planes of the distance are made to recede.

In the second place, the cost of a stereoscopic outfit is not great when compared with that of some of the larger sizes for single pictures. The chief item of expense will be the pair of lenses, which must be accurately matched in focus, defining power, and relative speed. But it should be remembered that as most of the lenses used for stereoscopic purposes do not exceed six inches focal length, the cost of a pair will be less than that of even a moderately good instrument for any of the larger sizes; also, that either of the pair may at any time be used singly; and that, very often, one or other of the combinations may be used alone, thus giving virtually another lens of double the focal length of the original. As the size of the stereoscopic plate is but small, the outlay in films, chemicals, paper and card mounts, will be correspondingly modest.

The stereoscopic outfit, if properly packed, will be very convenient and portable.

It might be supposed that in so simple a matter as choice of the size of plate for stereoscopic purposes a uniform measure would have been adopted long ago. This

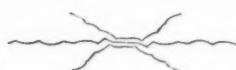
is not the case, however, and the explanation is probably to be found in the fact that mistaken ideas of economy on the part of some operators led to the use of plates as nearly as possible the size of the stereoscopic picture itself. This size had been fixed at about $2\frac{3}{4}$ inches square, and was used for many years so that the plate $6\frac{3}{4} \times 3\frac{1}{4}$ inches gave a fair margin for trimming out the pair of twin pictures. It was soon ascertained, however, that pictures decidedly larger than this, and whose centres were even $3\frac{1}{2}$ inches apart, could be well viewed in the stereoscope, provided that the mounting were carefully and properly done. But the practical difficulties in the way of mounting two pictures on the same card with the centre-points at precisely equal distances from the lower edge of the card, led to the adoption of sizes such as 3 inches square or a trifle under, so that if mounted a little out of centre the eye would still be able to combine the two images without effort when the stereoscopic slide was set in its place in the instrument.

Not to pursue this part of our subject to a wearisome length, we may say that, all things considered, a plate 8×5 inches will be the best on which to make stereoscopic negatives. It should be borne in mind, if a special size such as $7\frac{1}{2} \times 4\frac{1}{4}$ inches be adopted, that the prices paid for the sensitive plates when cut to this odd measure will be the same as those for the next size larger, so that there will be no saving in this respect. Each half of the 8×5 inch plate will thus afford a nice little single picture of nearly 5×4 inches in size, or when the three inch square pictures are trimmed out for the stereoscope, they will come from the centre of each half of the plate where the definition of the lens is the most crisp and perfect.

The manipulations concerned in making stereoscopic negatives do not differ from those for any ordinary plate. As one of the chief beauties of a good stereoscopic slide is that the pictures appear twin in all respects, care should be taken to select plates that are evenly coated with emulsion. A plate thick at one side and thin at the other will give prints with a decided difference of tone-intensity, and although the view may appear quite well to the eye when examining it in the stereoscope, the effect of a dark print and a light print of the same subject mounted side by side is very unworkmanlike and unneat.

Beginners in stereoscopic photography should not forget that defects of any size or prominence on one-half of the twin-negative will render it useless for stereoscopic purposes. It may be possible at times to touch out these defects, but it requires a highly skilled hand to succeed. A defect on one side of a view may be covered up adroitly enough to escape detection in the single picture, but when the slide is put into the stereoscope the defect will appear in ghostly form in mid-air, and strike wonder if not dismay to the hearts of all beholders.

ELLERSLIE WALLACE.



MISCELLANEOUS NOTES.

FOR REDUCING OVER-DENSE GELATINE-NEGATIVES.—Heppler, in the "*Archiv*," suggests the ordinary iron developer for collodion plates. He asserts that the image can be entirely removed if a strong solution be used and the immersion sufficiently prolonged. For the benefit of those not familiar with the collodion process, we will say that an average developer might be made by dissolving 20 to 30 grains of sulphate of iron in an ounce of water, and adding from 1 to 2 drachms of acetic acid, No. 8, or 30 minims of the glacial acetic acid. When kept for a time this developer turns red and loses strength.

THE latest idea in the application of photography to the prevention of theft, is to have invisible wires running to all the safes or valuable articles in an apartment, and connected with the instantaneous shutter of a camera, and a pan containing a charge of magnesium flash powder; the whole to be worked by electricity. Nor is this all; for supposing the burglar to make a quick snatch at the camera that had taken his likeness without his leave, he would find himself disappointed. The gist of the new invention lies in the fact that by further subtle electrical machinery the plate holder, with the exposed plate, flies back into a recess in the wall that closes with an iron door immediately after the flash. The likeness would thus remain for identification even if the burglar was lucky enough to make his escape before the arrival of the police summoned by the electric bell.

MR. W. E. WOODBURY, in the *Photographer's World*, gives a recipe of his father's, the late Walter Woodbury, for rendering translucent the windows of photographic studios, backing up transparencies, etc., etc. Having used it extensively ourselves we can vouch for its excellence and cheapness.

Water	2 pints.
Common gelatine	10 ounces.
Glycerine	1 ounce.
White oxide of zinc	2 ounces.

Swell the gelatine in the water and dissolve by gentle heat, then strain through flannel. Rub the glycerine and zinc white together in a mortar, afterwards adding 2 ounces of water so as to make a soft paste. Stir this into the dissolved gelatine and allow to stand a few hours, keeping it gently warm. The coarse particles settle to the bottom, and after cooling the solution and turning it out like a mould of jelly, a slice may be cut off from the bottom, removing the impurities and leaving the rest quite clean. It is of course re-melted at a gentle heat before use.

AN amateur lady friend of ours, who is an attaché of the mint, tells the following: A country greenhorn with his girl, from Bucks County, while visiting the mint, was attracted by one of the old cannon which are preserved there as curiosities. He accosted our friend thus: "Say, missus, is them the things (pointing to the gun) they take likenesses with? Futtygraphs we call them."

"Yes sir, they are," said our friend, who determined to have a little fun with him. "Do you want yours taken?" "Yes," said he, "mine and this here lady's."

"Just take your places before it then and I'll do it for you right off," said our friend, who hurriedly brought her neat little detective camera, and exposed several plates on the couple who had posed themselves in a striking attitude in front of the mouth of the gun. The plates have not yet been developed, but we have no doubt that the happy pair have been well immortalized. Prints will be sent to them as soon as they are made.

OUR ILLUSTRATION.

THE scenes and incidents of everyday life may seem to the refined taste of the idealist too vulgar and commonplace for poetic rendering, nevertheless our domestic relations are capable of awakening emotion if sincerely and honestly expressed.

The greatest of our painters and novelists are content with the artistic aspects of modern life. "I am content," says George Eliot in *Adam Bede*, "to tell my simple story without trying to make things seem better than they were, dreading nothing indeed but falsity, which, in spite of one's best efforts, there is reason to dread. Falsehood is so easy, truth so difficult. The pencil is conscious of a delightful facility in drawing a griffin—the longer the claws and the larger the wings the better; but that marvelous facility, which we mistook for genius, is apt to forsake us when we want to draw a real, unexaggerated lion. Examine your words well, and you will find that, even when you have no motive to be false, it is a very hard thing to say the exact truth, even about your own immediate feelings—much harder than to say something fine about them which is *not* the exact truth.

"It is for this precious quality of truthfulness that I delight in many Dutch paintings which lofty-minded people despise.

"I find a source of delicious sympathy in these faithful pictures of a monotonous, homely existence, which has been the fate of so many more among my fellow-mortals than a life of pomp or of absolute indigence, of tragic suffering or of world-stirring actions.

"I turn without shrinking from cloud-borne angels, from prophets, sibyls, and heroic warriors, to an old woman bending over her flower-pot, or eating her solitary dinner while the noon-day light, softened perhaps by a screen of leaves, falls on her mob cap, and just touches the rim of her spinning wheel and her stone jug, and all those cheap common things which are the precious necessities of life to her, or I turn to that village wedding, kept between four brown walls, where an awkward bridegroom opens the dance with a high-shouldered, broad-faced bride, while elderly and middle-aged friends look on, with very irregular noses and lips, and probably with great pots in their hands, but with an expression of unmistakable contentment and good will.

"'Foh,' says my idealistic friend, 'what vulgar details? What good is there in taking all these pains to give an exact likeness of old women and clowns? What a low phase of life! What clumsy, ugly people.'

"But, bless us, things may be lovable that are not altogether handsome, I hope. I am not at all sure that the majority of the human race have not been ugly, and even

among those 'lords of their kind,'—the British,—squat figures, ill-shapen nostrils and dingy complexions are not striking exceptions. Yet there is a great deal of family love amongst us. I have a friend or two whose class of features is such that the Apollo curl on the summit of their brows would be decidedly trying; yet to my certain knowledge tender hearts have beaten for them, and their miniatures—flattering, but still not lovely—are kissed in secret by motherly lips.

"I have seen many an excellent matron who could never in her best days have been handsome, and yet she had a packet of yellow love letters in a private drawer, and sweet children showered kisses on her sallow cheeks. And I believe there have been plenty of young heroes of middle stature and feeble beards, who have felt quite sure they could never love anything more insignificant than a Diana, and yet have found themselves in middle life happily settled with a wife who waddles. *Yes, thank God; human feeling is like the mighty rivers that bless the earth, it does not wait for beauty, it flows with resistless force, and brings beauty with it.*

"All honor and reverence to the divine beauty of form! Let us cultivate it to the utmost in men, women and children,—in our gardens, in our houses; but let us love that other beauty, too, which lies in no secret of proportion, but in the secret of deep human sympathy.

"Paint us an angel, if you can, with floating violet robe, and a face paled by the celestial light; paint us yet oftener a Madonna, turning her mild face upward and opening her arms to welcome the divine glory; but do not impose on us any aesthetic rules which shall banish from the region of art those old women scraping carrots with their work-worn hands, those heavy clowns taking holiday in a dingy pot-house, those rounded backs and stupid weather-beaten faces that have been over the spade and done the rough work of the world, those homes with their tin pans, their brown pitchers, their rough curs, and their clusters of onions.

"In this world there are so many of these common, coarse people, who have no picturesque, sentimental wretchedness!

"It is needful we should remember their existence, else we may happen to leave them quite out of our religion and philosophy, and frame lofty theories which only fit a world of extremes.

"Therefore let art always remind us of them; therefore let us always have men ready to give the loving pains of a life to the faithful representing of commonplace things,—men who see beauty in the commonplace things, and delight in showing how kindly the light of heaven falls on them.

"There are few prophets in the world, few sublimely beautiful women, few heroes. I cannot afford to give all my love and reverence to such varieties. I want a great deal of those feelings for my everyday fellow-men, especially for the few in the foreground of the great multitude whose faces I know, whose hands I touch, for whom I have to make way with kindly courtesy. Neither are picturesque lazaroni or romantic criminals half so frequent as your common laborer, who gets his own bread, and eats it vulgarly but creditably with his own pocket-knife. It is more needful that I should have a fibril of sympathy connecting me with that vulgar citizen, in a vilely-assorted cravat and waistcoat, who weighs out my sugar, than with the handsomest rascal in red scarf and green feathers; more needful that my heart

should swell with loving admiration at some trait of gentle goodness in the faulty people who sit at the same hearth with me, or in the clergyman of my parish, who is, perhaps, rather too corpulent, and in other respects is not an Oberlin or a Tillotson, than at the deeds of heroes whom I shall never know except by hearsay, or at the sublimest abstract of all clerical graces that was ever conceived by an able novelist."

Our illustration is a simple theme, simply rendered, and yet we trust it has some of the elements of the picturesque. At least there is no straining after effect—no melodramatic inflation. It may be of interest to know the process of generation of this picture.

It was made out of doors, in an angle where two walls come together, and are covered by a roof. The bricks of the pavement have been left to represent an old-fashioned tiling floor. The mantel-piece is of boards covered with paper; the fire-place is only a simulation—a piece of black cloth gives the appearance of a hollow. The principal light strikes at an angle of about 45° , and a little to the front. No reflector is used, and no retouching of the negative.

The reproduction is work of the Crosscup & West Engraving Company, of this city, and is by the Ives process. The block can be printed in an ordinary printing press.

TENTH ANNUAL CONVENTION OF P. A. OF A.

EXHIBITION OF APPARATUS AND PHOTOGRAPHIC MATERIAL.

THE exhibition by the stock dealers and manufacturers, although not characterized by the elaborateness of display so marked by other conventions, possessed much interest from the increase of exhibits of practical value to the profession.

Very much has been done since the last convention in the perfecting of film photography. The new celluloid has been so much improved in quality as to be eminently suitable as a substratum for the sensitive salts of silver.

Mr. John Carbutt, of Philadelphia, displayed a large collection of work made upon his flexible film, remarkable for brilliancy and beauty of finish, in every respect equal to the best productions from glass plates.

Mr. Carbutt also employs celluloid films in the production of positives. The celluloid is toned in delicate tints, and the images printed directly upon the film. These film positives are most attractive, and would most certainly excite the attention of customers, as they are capable of so many varied applications for ornamental purposes. Carbutt's orthochromatic plates are most successful in correcting the failure of ordinary plates to render the colors in their true relation. By their use, copies of paintings containing blue, red, and yellow colors are much nearer the original than impressions from ordinary plates. Mr. Carbutt showed this in his exhibit, which, by the way, should have been in a more conspicuous place; copies of paintings rich in the non-actinic colors were displayed, and by their side photographs of the same, so that it was possible at a glance to see the perfect preservation of the color relations.

The Eastman Dry Plate and Film Company, of Rochester, N. Y., is entitled to great praise for the success attained in the production of celluloid film of such excel-

lent quality that there is an entire freedom from spots or defects of any kind, and at the same time of so flexible texture as to be used with the greatest ease upon their roll holder spools. The weight is so trifling that material for one hundred exposures $6\frac{1}{2} \times 8\frac{1}{2}$, including camera, etc., is not much over five pounds, while the quantity of glass plates capable of giving the same number of exposures weighs nearly eighty pounds.

The M. A. Seed Dry Plate Company also had a very handsome display of work upon their positive and negative celluloid films.

As usual there was a fine exhibit of lenses. Morris Earle & Co., of Philadelphia, showed an array of the Beck Autographic lenses, with a selection of most beautiful photographic work as evidence of its excellent qualities.

We were also shown the new patent rectilinear lenses of the same make, the Iris-diaphragm, and the Beck wide-angle lens.

The well-known Suter lens of Allen Bros., Detroit, showed what excellent work it was capable of producing in the large display.

The Wilson-Hood-Cheyney Company, of Philadelphia, was represented by Mr. John Hood. The exhibit was among the best arranged in the hall. Of course the celebrated Ross lens was there. Its qualities are now so well-known and appreciated that it would be almost like gilding gold to praise it here. Among the many novelties shown by this firm we were especially attracted by the English border negatives. These floral borders ought to be popular in this country. A pretty face peeping from behind a wreath of flowers makes a charming picture. The Japanese tissues for protecting prints are both ornamental and useful.

Messrs. Bausch & Lomb introduced for the first time at this convention their new lens made by the famous Alvan Clark. It is claimed that they are in construction dissimilar from any lens hitherto made, and are quite as wonderful as Mr. Clark's telescopic objectives. It is also claimed that they have a much wider angle than ordinary rectilinear lenses, embracing about 100° .

But perhaps no lens attracted greater attention than the rapid wide-angle Euryoscope, of Voigtlander & Son, Munich, exhibited by Benjamin French & Co., of Boston.

This lens is undoubtedly an optical wonder. Its remarkable qualities are doubted until made manifest by actual demonstration. Its success in construction is said to be largely due to the quality of the glass employed in its manufacture, a special optical material made at Jena, in Germany.

One of its great advantages, one which will recommend it to photographers constrained by conditions of studio to limited quarters, is the very short range at which it may be used without giving distortion or necessitating great stopping down.

Notwithstanding it is of longer focus than ordinary wide-angle lenses, the field it covers is considerable. To its other virtues add that of rapidity, and we think it can safely be said that the wide-angle Euryoscope is indeed an optical wonder.

E. & H. T. Anthony were, as usual, out in full array, with their excellent commodities, and The Scovill-Adams Company had its centre everywhere, so that it was difficult to find its boundaries.

The A. M. Collins Manufacturing Company, of Philadelphia, had not quite so elaborate a display as usual, but it was effectual in showing their taste in designs,

patterns and colors of card stock. Almost every variety of delicate tints attracted the eye, and the many shapes and sizes would more than satisfy the most exacting amateur.

The improvement in burnishers was a marked feature of this exhibition.

The Acme Burnisher Company attracted much attention on account of the beauty of finish of the instruments, and the facility with which the work of burnishing the prints is accomplished.

The Acme employs coal oil instead of gas, which is cheaper fuel than gas or alcohol, and further economy in the fuel is secured by the peculiar construction.

It is a flue heated machine, being so formed that the heat is uniformly distributed over the entire surface. Moisture is prevented by making the feed roll hollow throughout its whole length, thereby creating an air chamber through its centre. This prevents any injury to the polishing tool or to the picture which might come in contact with the dampness.

Near by the entrance was the exhibit of J. A. Knorr, of New York, who was represented by the indefatigable Mr. G. Bates.

Mr. Bates certainly deserves much praise for the taste displayed in arrangement of his exhibits, which comprised a full assortment of the German photographic mounts made by Carl Ernst Company, of Berlin. These cards are especially noted for the fine enameled surface they possess, as well as the originality of the lithographic designs on the backs. Mr. Knorr also exhibited a full line of papier mache trays, and some beautiful prints made on the Diamond brand of albumen paper.

(*To be continued.*)

SEMI-CENTENNIAL CELEBRATION OF PHOTOGRAPHY.

TENTH ANNUAL CONVENTION OF PHOTOGRAPHERS' ASSOCIATION OF AMERICA,
AUGUST 6-10, 1889.

FIRST SESSION.

THE CONVENTION was called to order at 11 A.M., by President McMichael.

PRES. MCMICHAEL.—Ladies and Gentlemen: It is our good fortune to have with us this morning our mutual friend, the first president of the Photographers' Association of America, who will welcome you to the Tenth Annual Convention of this Association and to the First Semi-Centennial of Photography.

I take great pleasure in introducing to you Mr. J. F. Ryder, of Cleveland, Ohio.

ADDRESS OF MR. RYDER.

Mr. President, Ladies and Gentlemen:

Twenty years ago, in this hospitable city, was held the first convention-exhibition of the National Photographers' Association—the first meeting of an educational character held in this country, and the commencement of a progress in our art well

understood by those who as members have profited by attendance. Now, after a lapse of two decades of "swinging around the circle," we return again to the "Hub," where, out of the rapid whirl, we may sit down and measure our acquirements with each other, and against ourselves a score of years back.

A good number of the attendants of that former meeting are here again to-day, to see, to hear, to note the mile-posts of progress as we pass them in review over the road we have left behind, and to aim the focus of good resolution upon the possibilities of the future.

Another anniversary than that of our twentieth year of meeting is upon us,—the fiftieth of the existence of photography as a practical art, and its gift to the world by its generous discoverer, Louis Jacques Daguerre. Fifty years, in which have grown from the little mirrored plate, carrying a dim, uncertain image, the wonderful achievements of to-day. Portraits from life direct; the size of life, in such state of perfection and truthfulness as has never been attained by any other means. In landscape, the perfection of detail, texture and naturalness may be imitated by the painter's brush, the graver's or the etcher's needle, but never can be equaled by them.

In the world of Science it has become a lever of strength, such as has not before been applied or known. By its means the moon is brought down into our very hands, and we can examine its features as we would the face of a man. We record with its help the phases of eclipse, transit, and other valuable phenomena of the heavenly bodies, and hold them as proofs and facts in Astronomy, which otherwise could not be shown.

We bring the bowels of the earth and the bottom of the sea into our hands, and before our eyes for examination. We catch the zig-zag lightning, the cannon-ball in its flight. We are so much quicker than the limited express that we catch her on the run, showing the spokes of her drive-wheels as though she were standing still.

In medical science, by its aid the germs of disease are exposed and proven; the various stages of progressive disease are noted in the tissues, and secured as valuable knowledge to the healers of ailments in man and beast.

In the "Art preservative of Arts" it plays an important part. The short cut from the camera to the stereotype plate upon a cylinder press, by which means the important happenings of to-day may be shown in to-morrow morning's papers, is a stride in methods much appreciated in this age of progress.

I may say the time is near when the wires which carry messages by electricity will also carry the photographic image from the camera of its birth to distant points, and it shall be possible for a sitting made in Cleveland to be transmitted by wire to Boston. I say from Cleveland, because the brain which has solved the problem, and is engaged in perfecting the means, is in that city.

I must not take more of your time. To enumerate the facts and possibilities of photography would require the writing of a book. In the name of the Photographers' Association of America, and in behalf of the photographers of this city, I give you most hearty welcome to Boston.

The report on the progress of photography for the year ending August 10, 1889, was then read by Mr. W. I. Lincoln Adams.

REPORT.

Photography's growth has been constant and rapid ever since its birth, fifty years ago.

During the year which has passed since our last convention much has been accomplished in photography in this country which especially deserves our consideration.

Several important improvements have been made in photographic objectives and apparatus, and these, of course, are followed by a better class of work. Better and cheaper lenses put it within the power of more photographers to turn out larger and finer productions; while improved cameras, stands, holders, printing frames, etc., make it easier for them to do the work.

The prices obtained by photographers for their work are not generally lower than they were one year ago, so that the downward tendency in the cost of materials results in slightly increasing their profits. Several attempts have been made during the year to form combinations for the purpose of artificially raising prices, the latest movement in this direction being the largest and strongest which has thus far been started. But photographers are learning gradually that a more effective way to prevent hurtful competition is to improve the quality of their productions rather than to resort to arbitrary combinations, or lower the quality of their work in order to meet the prices of inferior operatives.

As the number of amateur photographers increases rapidly the former distrust and prejudice on the part of some professionals seem to be giving way, and the two classes are therefore working toward the natural result of greater benefit to their common art and reciprocal aid to each other.

The problem of substituting for glass another equally transparent but less fragile and lighter support for carrying the sensitive bromide of silver, seems to have been successfully solved by the introduction of transparent celluloid films.

Mr. John Carbutt's "Flexible" films, and the "Ivory," are undoubtedly a marked step in advance. They are as sensitive as plates and as easily developed; are not one-fifth so heavy, will not break, and require no stripping. Though they are at present somewhat higher in price than the glass plates, they will undoubtedly be considerably cheapened as the demand for them increases.

The Eastman Dry Plate and Film Company made a still further advance in coating celluloid sheets of sufficient thinness and length to be easily rolled on the roll-holder.

Celluloid has also been proposed as a substitute for ground glass in the focusing screen, and it seems to answer the purpose very well. A varnish composed of celluloid dissolved in acetate of amyle has been introduced, which works especially well with gelatine transfers. Celluloid has also been mentioned as an improved material, because of its lightness, for the manufacture of plate-holders, and even cameras.

Dry plates have been considerably increased in sensitiveness during the year, and are now made of a more uniform quality than in times past. Commercial orthochromatic plates are being quite largely employed for landscapes and copying.

With the magnesium "flash" light photographers have undoubtedly improved in their management of the light effect on the subject; but it can scarcely be said that this method of artificial lighting has increased in general use, especially during

the latter part of the year. On the contrary, it is probably considerably less used now than it was one year ago, though those who do employ it are more skilful in its use. The tendency at present is to use magnesium powder in a pure state; and many ingenious lamps and devices for igniting and burning it have been invented.

Among developers hydroquinone has scarcely held its own, though for lantern slide purposes, window transparencies, and the making of "black-and-white" negatives for engravers, it continues to retain all of its old friends, and has probably added somewhat to their number. It has not been shown to be superior to pyro, however, in developing a briefly-timed or under-exposed plate.

Hydroxylamine, though strongly advocated at first by a few, has been almost totally abandoned on account of the blisters which are invariably produced on the film when it is used. Two new developing agents have been announced, Eikonogen and Pyrokatechin, for which several advantages are claimed. Metabisulphite of potassium, as a more perfect preserver of pyro and hydroquinone in solution than a mono-sulphite, promises to be more widely used for that purpose.

In printing methods, though the platinotype, the bromide, the chloride print, and, most conspicuously of all, perhaps, the collodion aristotype, have prominently come forward during the past year, albumen paper has not been largely superseded for professional purposes. Amateur photographers are attracted by the artistic dullness of plain silver prints; and cyanotypes, toned and untoned, seem to be gaining in favor with this large class of modern photographers. There has been a slight tendency shown among enlargers during the past year to return to the old method with iodide of silver, developing with gallic acid.

Lantern-slides are being made more industriously than ever before; the International Lantern-Slide Exchange, maintained by the photographic societies of Great Britain and our own country, keeping the interest active in this fascinating department of photographic work. In photo-mechanical printing methods there is nothing absolutely novel to report, though the excellent old processes are being more extensively used than ever before.

A new principle in heliochromy has been announced by Mr. Frederic E. Ives, of Philadelphia. He produces heliochromatic negatives by exposing color-sensitive plates through compound color screens, so adjusted that the curves of intensity which correspond to the action of light rays upon the sets of nerve fibrils that produce color sensation are clearly shown.

Photographic literature has been considerably augmented during the past year; three annuals, five monthlies, two semi-monthlies, and two weeklies being published in this country at present.

Several important new books have been brought out during the year, and new and revised editions of excellent older works. More attention is being given by publishers to illustration, and photographers, as a class, are growing more studious.

Instruction in photography in schools and colleges is become more general. The Chautauqua School of Photography, founded three years ago, with a membership of only sixty-one students at the end of the first year, now numbers over 150 members. The number of photographic societies has also been largely augmented during the year. There are now about seventy-five such organizations in this country.

In concluding our consideration of the progress which has been made during the twelve months, it seems fitting to speak at least briefly of those useful members of the profession who have gone to their rest. Joseph Zentmayer and Richard Morrison, both able opticians, have ceased their labors in behalf of the fraternity during the past year. Marcus A. Root, one of the oldest daguerreotypists of Philadelphia; Anthony Baumgartner, the well-known retoucher; Dr. Maurice H. Miller, photomicrographist; David Cooper, an expert; D. U. Morgan, the albumen paper manufacturer; and Edward Anthony, photographic merchant, have also passed away. Their eminent services to the fraternity should be an inspiration for us who remain to labor more diligently and conscientiously than ever before; and if we exert ourselves in a manner at all worthy of the memory which they have left to us, we shall assemble one year from this time with still greater advances to report, and more encouraging prospects for the future.

W. I. LINCOLN ADAMS.

After considerable discussion, Detroit, Mich., was fixed upon as the location for the meeting of the next convention.

The last order of business was the reading of the annual report by the president.

ANNUAL REPORT OF PRESIDENT OF PHOTOGRAPHERS' ASSOCIATION OF AMERICA.

Ladies and Gentlemen:

The Tenth Annual Convention of the Photographers' Association of America finds us in the beautiful city of Boston, remarkable in historic renown, celebrated in literature, and so wonderful in growth, both of its extent and beauty, that we may all find sympathy and encouragement in our present surroundings.

Many years ago willing hearts and hands were banded together for the best interests of the fraternity, and made Boston the birthplace of the first National Photographers' Association in America.

Like all pioneer societies, the old National Photographers' Association struggled against many difficulties, and was successful in sowing good seed, from which sprang the present guild, which has had the most brilliant career of any of its kind.

It is indeed a pleasure to meet again after the separation that has intervened since our last convention in the city of Minneapolis.

And now, fellow members, at this time, after our first warm greetings are over, allow me to congratulate you on the distinct indications I see around me of a renewal of old friendships and associations, with the prospect that many new ones may be joined to that band which will add vigor and lustre to our future, and I sincerely trust that our assembling here may be fraught with so profitable and cheering results that photography may no longer be a "fountain sealed" to us, but, that our proceedings, like the unfinished works of Raphael and Michael Angelo, may have an intrinsic value in themselves as "studies" for those who come after us.

The year through which we have just passed has been one of steady progress, which has yielded positive results in growth towards a higher standard of photographic work.

This latter part of my summary, however, does not prove satisfactory to photographers, on account of the failure on the part of the fraternity to maintain a higher grade of work and demand better pay for their labors. I hope the time is not

far distant when the photographers of America will stand shoulder to shoulder for the advancement of their mutual interests.

When we look around and see the innumerable societies of every kind, national, musical, educational, and political, each united to impress the world with its strength and distinct characteristics, and then compare our own small numbers, we can safely tell the world that we know but little of union. We should take lessons of our neighbors in the art of standing together for mutual aid and comfort, and the assertion of our rights, which is in itself a noble characteristic.

But the attainment of any real good in life is dependent upon previous work, good, honest, persistent, and even consecrated labor. "Nothing comes of nothing."

In approaching this more serious and practical part of our object in the Association, sentiment for a time must give way to facts, some of which I would now submit in a statistical report.

In the year 1884, W. C. Armstrong turned over to G. M. Carlisle \$601.44, being the surplus from the first five conventions.

At the fifth annual convention held in Buffalo in July, 1885, the receipts were \$4,030.84, and the expenses of that year \$2,718.94, making a net gain of \$1,312.35, and leaving a balance of \$1,913.59 in the treasury.

In the year 1886, the receipts at the St. Louis convention were \$4,054.40, disbursements \$3,447.17, a net gain of \$610.23, and leaving a cash balance in the hands of the Treasurer, January 1st, 1887, of \$2,528.57.

At Chicago, in 1887, the receipts were \$6,000.10, and the expenses \$5,202.61, making a net gain of \$797.49, leaving a balance in the treasury January 1st, 1888, of \$3,324.06.

At Minneapolis, in 1888, the receipts were \$2,905.93, and the expenses \$3,311.16, making a net loss of \$405.23, and leaving a balance of \$2,917.93 Jan. 1st, 1889.

It does seem with so large a surplus in the treasury that the members do not receive all the benefits in an educational way that they are entitled to. I think there has been a tendency on the part of a majority of the officers to give too little thought to the education of members in art culture.

This year we secured the services of Dr. Edward L. Wilson for an art lecture, illustrated by a series of lantern slides, and also another evening's entertainment by Dr. Arthur H. Elliott on "Orthochromatic Photography," illustrated by studies from prominent workers such as Boissonnas and Vogel of Germany, Eder of Vienna, and Ives, of Philadelphia; but both were obliged to disappoint us on account of an unusual surplus of work.

I should recommend that the Association appropriate the sum of \$500.00 for a like purpose the coming year, so that to other than pleasant reflections may be added practical usefulness to art.

And now, brethren, the time draws near when I shall surrender into your hands the high authority with which I have been vested during my term of office as your President.

The exalted honor which it has been my good fortune to receive at your hands, the courtesy and kindness that have been manifested towards me by the officers and members of the P. A. of A., cannot fail to be a proud and grateful remembrance, and I trust that my humble efforts have met with some degree of success.

The following telegram was received from London:
"President Photographers' Association of America, Boston:

Hearty congratulations from the Photographers' Convention, United Kingdom.
(Signed), BRINGSHAW."

Mr. Gentile hereupon remarked that in Paris, France, the congress of the photographers of the world was holding its first meeting, and thought it would be very becoming on the part of the National Association to send congratulations, especially as this is the celebration of the semi-centennial of the discovery of photography by a Frenchman. He therefore moved that a telegraphic congratulation be sent to Paris.

Mr. DeFoe suggested that the maker of that motion should incorporate in it that a reply be sent to the telegram just received.

The motion was unanimously carried.

Mr. Adams thought the action should be more official. He therefore moved that the President of the Association be the Chairman of that Committee to send those telegrams.

Motion seconded and carried. The following committee was appointed by the President: Mr. Michael, Mr. Cramer, Mr. Ryder, Mr. Gentile and Mr. Carbutt.

The convention then adjourned to meet at ten A. M., Wednesday, August 7th, 1889.

SECOND SESSION,

BOSTON, August 7th, 1889.

The first business was the reading of communications.

The Secretary read the following communications:

Le Congress des Photographs, Paris:

The Photographers' Association of America now assembled in Boston sends cordial congratulations. H. McMICHAEL, President.

50 Bromfield Street, BOSTON, August 6, 1889.

The Boston Camera Club begs to tender congratulations to the Photographers' Association of America on the auspicious opening of the Tenth Annual Convention, and the semi-centennial of the discovery of photography.

(Signed,) **GEO. E. CABOT, President,**
EDWARD F. WILDER, Secretary.

H. McMICHAEL,

Photographic National Association.

Mechanics' Building, Boston

Greeting from the Rockies! Sincerely regret that I cannot be with you, as this will surely be the grandest meeting in the history of the Association. Hope you will meet again east of the Mississippi, and in '91 come to Denver.

(Signed,) W. H. JACKSON.

The following report was read:

Mr. President and Members of the Convention.

Your Committee appointed to nominate officers for the ensuing year begs leave to submit the following names:

For President, J. F. Ryder, Cleveland, Ohio; for First Vice-President, P. B. Scott, Chicago, Ill.; Second Vice-President, C. G. E. Kimball, Concord, N. H.;

Secretary, H. McMichael, Buffalo, N. Y.; Treasurer, G. M. Carlisle, Providence, R. I.

W. H. ROBEY,
GEO. BARKER,
W. G. ENTREKIN,
F. W. GUERIN,
S. J. DIXON,

Nominating Committee.

PRES. McMICHAEL. The manner of choosing the judges this year is as follows: The President will name a chairman from the competitors of each class. They shall call a meeting of the competitors, who shall select three judges for each class. These are not judges. Each of these gentlemen is one of the exhibitors in each class, and they are to choose their own judges. And it is better that they should act at once just as soon as this meeting is over, because they will want all the time possible to look over the pictures.

The following were appointed chairmen: Class F, James M. Dow; Class E, E. Decker; Class D, Theodore Heinig; Class C, George Barker; Class B, W. Steuber; Class A, C. M. Elton; grand prize, C. W. Motes.

After much discussion the place of meeting fixed upon on the previous day for holding the convention of 1890, was changed from Detroit to Washington, D. C.

Mr. Abram Bogardus exhibited a daguerreotype of Daguerre made in Paris in 1846, and Mr. McMichael showed another representing a Convent in Syria, made with one of Daguerre's original instruments, in the year 1839.

Mr. CLARK, of St. Louis, read the following letter in reference to it.

BOSTON, August 6, 1889.

To the Photographers' Convention:

GENTLEMEN: I beg to tender you, as a loan, a daguerreotype taken with one of Daguerre's original instruments, in the year 1839.

It was presented to me by Monsieur H. G. Joly de Lotbinniere, son of the gentleman (amateur) who took the impression.

Should you deem it worthy, it is at your service. Appended please find the copy of a portion of Monsieur H. G. Joly de Lotbinniere's letter to me.

Very truly yours, —————.

No. 35 Devonshire Street.

Extract of a letter from Monsieur H. G. Joly de Lotbinniere to Chas. W. Galloupe, dated October, 1888.

"It represents the inner court of one of the numerous convents where the travelers in those days were hospitably entertained by the good fathers.

"The Journal repeatedly alludes to the taking of daguerreotypes in Greece, on the Nile, in Palestine, Syria, etc., and describes in each case the result, which was much more often failure than success. The sun, the heat, want of experience in the proper use of the numerous chemicals used in those days, the impalpable grains of sand from the desert staining the metal plates, the neglect and awkwardness of the Arabs who helped, the difficulty of moving about safely all the necessary paraphernalia, etc., etc.

"My father undertook that Eastern trip for the benefit of his health, and thought it would add much interest to his travels if he took one of Daguerre's apparatuses. Of course he must have obtained some information as to the mode of using it, but whether Daguerre's theory was not yet perfected, or my father's practical knowledge insufficient, he had to contend with great difficulties, gradually improving by patient experiments, without ever appearing to have reached a perfect solution to his own

satisfaction. The difference of climate, light and heat, between France and the East, must have had something to do with it."

He had the good fortune to meet in Egypt the great painter, Horace Vernet, who, on his side, had also brought one of Daguerre's apparatuses. They took several pictures together with variable success, improving as they went, but evidently still in the experimental stage.

It is interesting to compare the rapidity and perfection with which photographs are now taken with the slow and complicated process of the Daguerreotype of fifty years ago, requiring, in some cases, as I see by the Journal, as much as nine minutes to take one picture.

Mr. Ryder, of Cleveland, Ohio, made the following remarks: "I would like to say that, this being the fiftieth year of the discovery of photography, and, in a manner, a proper time for a jubilee, and there being now assembled in the city of Paris a congress of the photographers of the world, I move you, sir, that a committee be appointed,—and I will suggest that the present officers of this Association should be that Committee,—to receive one dollar subscriptions to a little monument or tablet to Daguerre, to be put in some public place where all can see it, and where we would be doing ourselves pleasure and honor in contributing to a memorial of the man who has done so much for us."

Motion seconded.

He further suggested that the journals devoted to our art could assist in this matter by publishing the contributions, giving the names and addresses of all contributors, and by the time of our next convention there might, perhaps, be a fund which it would be worth while to devote to this object.

Mr. Stanton then said: In seconding the motion, I might, perhaps, make a few remarks. I am one who, since the year 1855, has been engaged in photography. I made, first, daguerreotypes. You probably can find but few men here who can say that; my friend Bogardus, and perhaps a dozen more, will be about all. I think we ought to have had here a large exhibition of daguerreotypes. My collection was unfortunately burned some years ago. But there are fine collections of daguerreotypes in New York, those made by Brady, Bogardus and other parties, which should have been here. We have a magnificent collection of photographs here. They are all daguerreotypes, for daguerreotypes are photographs. There is no question that they are all of one type. We should have exhibited photographs made by mechanical process, or photo-gravures. The photographs that are used in book publications should have been exhibited in all the perfection in which we find them to-day. Also, the men who are engaged in this work should be invited to contribute to this monument. By these means we will be able to raise a magnificent fund for the erection of some kind of a monument to the founder of our great and wonderful art. I think, gentlemen, that we do not take a high enough stand in this art of photography. We are not united enough. We are satisfied to take too low a level. We are satisfied to take too little for our work. We ought to organize, and we ought to educate the people. We ought to become a class of people who are known and who have a standing in society like our physicians and dentists, and like many other men. We take a lower stand,—there is no question about it. As a class of people, we have no standing, as photographers, as compared with physicians. Take the physician of a few

years ago, and he had no standing. It is only within a few years that Harvey settled the matter of the circulation of the blood. It is only a few years ago that physicians were regarded as quacks in comparison with what they are to-day. Why do we not take a higher stand than we do? We have made great progress in the last few years. The pictures on our walls, many of them, are works of art. Why should we not have lectures that would develop this art and cultivate photography as a whole, and thus enable them to take a stand in advance of that which the majority take to-day? I think myself that while competition has done much to benefit us, it has done much to lower us. When we get fewer men, we get better prices. The more men that come in, the lower our standing is. We ought to have lectures by eminent artists, accustomed to the camera and to the working of strong effects, who can give us instructions that will benefit us and raise the standard. I would say that I hope that fund will be largely augmented by calling upon men in all classes of photography, those who make photo-gravures, and men who are engaged in book publications, so that we may have a magnificent monument erected to Daguerre's memory.

Dr. Eliot said: In connection with the subject of erecting a monument, it is well to remember that there are a great many States in the Union, and that men will contribute from all these States. Where are we going to place the monument when we get it? I am strongly in favor of a statue or memorial of Daguerre, but we must not forget that we have got to put it somewhere. We cannot carry it around in our pockets.

Mr. Ryder remarked that in response to the question of Dr. Eliot, he would say that he had two places in his mind where a tablet to the memory of Daguerre could be very appropriately placed. He thought first, the city of Boston, being the place of the first meeting and being the city in which was held the semi-centennial meeting, a city that has been very kind to the association, and which has a common that would hold very creditably such a tablet. He therefore suggested the city of Boston. Next to that he preferred the city of Washington. He did not think it would be found necessary to carry it around in the pockets of the members from city to city, and suggested that it was a matter of sufficient gravity not to be treated humorously; that there was something in it, and he would like to see it carried through.

Mr. Bogardus thereupon said that speaking of a place to keep the monument of Daguerre, reminded him that some ten or fifteen years ago he had presented to him for the old association the original camera with which Professor Morse made his first daguerreotypes in New York City. He had the camera with its lens brought before the association at St. Louis. It was on exhibition, and passed into the hands of the treasurer, Mr. Moore, of Philadelphia, and after the Association was *non est*, it was never heard from again. It should be brought and kept with the monument of Daguerre. It was the first apparatus made in America to take pictures with, and was presented to him by Professor Morse, the inventor of the telegraph.

Mr. Ryder's motion was then carried. The motion was to the effect that the officers of the Association be a committee to receive funds for a monument to Daguerre.

Mr. Ryder thought that a good time to do a thing is now. He moved that some envelopes should be circulated among the audience allowing every man to insert his dollar with his name and address upon it.

The previous question was then called for.

The convention was then adjourned to eight P. M.

EVENING SESSION.

BOSTON, August 7, 1889, 8.30 P.M.

PRES. McMICHAEL opened the meeting by saying, This is a special session for presentation of papers and discussion of same. We will now have the pleasure of listening to a paper by Mr. G. D. Milburn, representative of the Eastman Dry Plate and Film Co., Rochester, N. Y.

MR. MILBURN'S ADDRESS.

Ladies and Gentlemen:

With your kind permission, I shall read you a few explanatory remarks on the Eastman Transparent Film, as that is the very latest discovery of any great value to the photographic fraternity.

By this time, no doubt, all of you have heard of these films, although you may not have seen them. The advantages of them to the photographer over glass dry plates and all other films already on the market, briefly summed up, are as follows: superior transparency, greater flexibility, lightness, compactness, practicability of printing from either side of the negative, and lack of halation. The above six combined advantages are of such great importance that they must stamp this nitro-cellulose support as the very best basis to hold a sensitive emulsion such as is required to make a perfect negative.

Heretofore non-transparency has been a great stumbling block to flexible films, but we can safely say that this is entirely overcome in Eastman's transparent films, for, as you see by our samples, they are about as transparent as glass.

The great flexibility of these films makes it possible and practicable to wind as many as one hundred exposures on one spool to be carried in one roller holder. In fact, experience has taught us that the best method to keep films of any kind absolutely flat during exposure, is to strain them over a board from spool to spool in the manner of the Eastman-Walker Roll-Holler.

The films carried in this way make a view outfit very light. One gross $6\frac{1}{2} \times 8\frac{1}{2}$ Eastman Transparent Films, and one of the same size roll-holders, will not weigh over five pounds, whereas one gross $6\frac{1}{2} \times 8\frac{1}{2}$ glass plates and say about one dozen of the same size double plate-holders will weigh about eighty-five pounds, which makes the dry plate outfit weigh eighty pounds more than the transparent film outfit.

When these films are carried for exposure in this manner, they occupy only about one-tenth part the space of the same amount of dry plates. Convenience of storage of the transparent film negative for future use, as compared with the glass dry plate, is something you must all appreciate. These films are so thin that it will be possible to print from either side of the negative, and being so thin there will practically be no halation in the negative.

The backing of these films is impervious to water, and unaffected by the chemicals in the developer, therefore there will be practically no contraction or expansion during the operations of developing, drying and printing from the negatives, which makes them absolutely perfect.

The Eastman Company are pioneer workers in flexible film photography. They

have, as you all perhaps know, introduced first, negative paper, second their American films, and now, the very best of all, their transparent films.

They have opened a new factory equipped for this especial work, and claim to have complete control over the quality of these films. Their improvement by the addition of the single revolution audible indicator and intermittent marker on their roll-holder for these films, makes this system of photography perfectly practicable for the studio and field. One hundred exposures can be made and developed consecutively or singly at the option of the operator.

President McMichael.—We will now listen to an address by Mr. Carbutt.

MR. CARBUTT'S ADDRESS.

Mr. President and Gentlemen :

The perfection to which the celluloid films have been brought at the present day shows a great achievement on the part of the manufacturers of them. But it has not yet arrived at its greatest perfection, although very much improved from what it was six months ago. The efforts to produce a substitute for glass date back some eight or nine years. Gelatine was the first article sought to produce this flexible film, and Rev. Mr. Palmer, of Liverpool, was one of the first in that line. N. W. Ferrier, of Paris, France, produced a double film of gelatine and collodion. The trouble was that the very thin film of collodion was not sufficient to support anything like the rigidity of the gelatine film. The gelatine film, having a desire to absorb moisture whenever it can get it, brought it out of plane. Then followed the making of the gelatine film bleached by sulphuric acid, then coated with emulsion; but that, during the manipulation of the chemical solution, became so softened that it was like handling a piece of wash leather.

Some three or four years ago my investigations in celluloid commenced. And, since I have become a manufacturer of the article, I have learned that I was antedated one or two years. So that I have to disagree with the gentleman who preceded me in the statement that Mr. Eastman was the one to produce first the transparent film. I was shown in New York, in the office of Messrs. Anthony, a film said to have been made some five years ago on celluloid. And I have no reason to dispute that as being a fact.

Early in this year I had a piece of film submitted to me over thirty feet in length, of precisely the same nature as is now brought on as being the invention of Mr. Eastman. I have some of that film at my house; I haven't here. And the remainder was returned to those who sent it, because I was not prepared with machinery to use so thin a material. The absence of halation on the thin, transparent film will depend a good deal on its backing. The film I now use can be used as well with a transparent as with a mat surface, as I am using both. So that the claim made by a rival manufacturer that he is the introducer of the transparent film is not good. The only claim that can be made is with reference to its thinness and adaptability to be wound on a spool. But as to there being any difficulty as to its not drying flat or giving trouble in printing, that is all nonsense. After the negative is washed off, and put into a very weak glycerine bath, and the surface afterwards rinsed off, the moisture in the atmosphere is counteracted, and it will give no trouble in printing. They can be printed from either side. We can show you an instance here where there are

two proofs from one negative, and it will puzzle you to tell which is the right view of that picture, and which is printed in the ordinary way by direct sunlight.

The advantage of the film over the glass I think will be appreciated before long by the professional photographer. There has been some difficulty in the material not working satisfactorily. The manufacturers of it as well as the maker of the film have united their efforts to overcome a difficulty that has been supposed to arise from the camphor in the film. But from late experiments which have been made, I am glad to say that the matter has been brought to a practical issue, and that the difficulty has been entirely overcome. And I can say, although it is a personal matter to speak of it here, yet as I am here to give all the information I can, I can say that what I have been turning out the last month is devoid of any defects whatever, any more than what there would be in any ordinary dry plate on glass.

The advantage of these films in transmission by mail is very great. I have had orders that I have sent,—well, I may say over all parts of the world, as far off as New Zealand, Australia, India, Corea, and wherever the mails reached; and I know that I have sent orders to China also. This could not have been done with glass. The weight, of course, is a great consideration with travelers. I suppose fifty per cent. of the amateurs who go abroad this year take films with them in place of glass.

The use of the film amongst the profession, I think, will soon become common. Although I have no assurance from the manufacturers that the price of the raw material will be reduced very speedily, yet I think from the recent sales they have offered us that it certainly must come about. There are at present only two manufacturers of it, as I understand, in the country; and only one making the product which I have used, because the other was not in a state perfect enough for me to use. I would say that when I commenced the investigation of this, the largest piece I could procure was about 8x10 inches, and was very uneven and could not be made smooth. About last June, when I again sought the company, I found they had been able to increase the size up to 20x30 inches, but there was a good deal of the film that was very imperfect. But they assured me of the high cost of the machinery, and the great care with which they selected the material.

It may interest you to know, as far as I am able to describe it, the way this celuloid is made. It is this: They buy the very finest of tissue paper, bleached as white as possible. That is nitrogenized. It is then ground up with camphor, and pressed out into a large slab. After some evaporation has taken place it is shaved off in thin slices and put into frames and stretched; and put into a press through which air is forced, and it takes about six weeks to cure it, as they term it. Then the finishing process is brought on. And my object in selecting and inducing them to manufacture it with a fine mat surface was to prevent halation, so much complained of in glass. And it certainly does effect that purpose. But I think, by the transparent film, with either white or black backing—black would be preferable—that halation would be prevented. The cut film has this advantage in my opinion, that larger sizes may be used, and they can be handled with a great deal more ease and rapidity.

If there are any questions which the members would like to ask, I am ready to answer them.

Dr. Eliot.—It is a well-known motto, "Let him who merits bear the palm." Mr.

Carbutt has very generously credited Anthony & Co. with the making of the first films. I happen to know that it was the old veteran, T. C. Roach, who had the first idea. T. C. Roach, of New York, was the man who had the first idea of using celluloid and making films. But somehow or other it fell through. Since Mr. Carbutt spoke of it, I thought it was just as well to place the honor where it was due.

Mr. Milburn. It is a good thing that you are all professional photographers to whom I am talking. For, as to any claim that Mr. Eastman is the inventor of this film, that is not the idea I tried to convey. It is this way: the celluloid, as I understand it, is made from emulsion. It is an emulsion or something similar, and you can alter it in almost any way, such as introducing a salt. Now we claim that we have put something into this emulsion or celluloid whereby we can make it finer and more transparent and more perfect. As to the statement that we invented it, that is a wrong statement, but we claim to have brought it into the perfect condition in which you find it now. And again as to the spots I have talked about, I did not try to convey the impression that the film could not be stretched smooth. But I have seen negatives from some of the films already on the market that showed spots of something like a vine or tree. And, as I understand it, that is due to the unequal distribution of camphor in the film. We claim that we have overcome that.

Pres. McMichael. Are there any more remarks on this subject, or any questions to be asked?

A member: I would like the privilege of asking Mr. Carbutt if he can explain the cause of opaque as well as transparent spots on various specimens of celluloid films that have been in the market.

Mr. Carbutt. The transparent spots are, in a measure, accountable for. They either arise from dust on the films at the time of exposure, or in some instances they have arisen, as I have ascertained by an examination made under the microscope, by small points in the film, which being brought to the surface of the emulsion make a little cone there. The emulsion is separated during the setting. This is palpable to the touch of the finger-nail, by just scraping the film off. A little point is found there, so small that it is invisible to the naked eye in looking over the surface, but it is sufficient to affect the emulsion so as to spread it away, leaving a little cavity. I have had some films shown me that were badly marked with transparent spots, which were merely air-bells. I at first suggested wetting the film. That is a good plan if you wet it thoroughly. But if you simply pour the liquid on and off, you are almost sure to make air-bells, because the gelatine surface does not absorb sufficiently to make it flow smoothly. Now, I wet the bottom of my developing tray, and the film lies perfectly flat, and then you can pour your developer over it, as over the ordinary dry plate. The developer is just simply poured over and not touched at all, and the development is complete. We are trying to eliminate all those difficulties. Some of the marks that appear on the films I cannot explain the cause of, but I believe they are in the nature of the film, and that that has caused it until recently. And I say now, that for nearly a month past I have been able to obviate it, whether it is my own doing or whether it is because of a change made in the celluloid. The manufacturers wrote me that all sent out after May 1st would be of an improved nature. They do not tell me what change they make in the preparation of it, but it shows that they are progressing and investigating the difficulties that have surrounded

the making of this almost perfect substitute for glass until it has now arrived at a very good state of perfection. They will leave nothing undone in the future to make it absolutely perfect.

Pres. McMichael. Is there anyone else who has any questions to ask?

Gentlemen: We have with us to-night the celebrated optician Alvan W. Clark, who will talk for a few minutes on lenses. Mr. Clark built the celebrated telescope of the Lick Observatory, I believe.

Mr. Alvan W. Clark. I do not know why I have been called upon to speak to you here this evening. I am not and never have been a member of the Association, but the President has kindly asked me to say something to you about lenses. Now, while I confess that I know more about astronomical lenses than I do about photographic lenses, still I do not consider myself exactly an amateur in photographic lenses. Over thirty years ago, I think thirty-five years ago, I made, or we made, my brother and myself, a photographic lens for Messrs. Whitten & Black. They worked with it a good many years. That is still in existence, and once in a while it is put to use at the present time. We have had it in our factory within a year. It is a very good lens, but has a very short focus,—too short for the work that the photographers want to do at the present time. If the lens were of twice the focus that it is, I have no doubt it would be a very useful lens. It having been made so long ago, the material of which it is made is not so good as we can get at the present time. And, another thing, we did not understand photography as well as it is understood to-day. Photography was in its infancy then, and we did not understand the corrections which were necessary to produce the best results in a photographic lens. But I sometimes think the photographers do not understand it either, because they insist upon it that the visual and photographic focus should coincide. Theoretically that is not right, and I contend that after you have focused as sharply as you can on your ground glass, your ground glass being the proper place, if you find that it does not cut exactly sharp, if you find this improved by putting the glass nearer the object glass,—that is, carrying your glass in,—you will get better results, you will get sharper results, and your lens will work quicker. There are a great many lenses on the market now that are called rapid rectilinear lenses, and most of them are alike. There is but very little difference in them, and I was surprised, when I first saw them, to know how the spherical aberration could be corrected on such a lens, and on close examination and measuring, I found it was absolutely impossible to do it with spherical curves, and that these lenses are not spherical curves. They are considerably off from a spherical curve, and they make a lens that I should suppose would be a great deal more liable to be unequal,—that is, one go one way, and another one another way. It is very difficult for anyone to polish a lens unless the lens is spherical, but these lenses I have found in the case of all of them, if you polish them spherically, are what we term short outside and long in the centre,—that is, the rays of light passing through the outside portions of the glass come to a focus before those that pass through the centre of the glass. But they have managed to correct them by some means; I do not know what. Now, I have done a great deal of work for astronomical photographers. With those instruments we always make the correction, so that the plate will go inside of the visual focus of the photographic lens. In that way you get sharper results, and the lens will work a little quicker. But what we call sharper

would be quite different from what you would call it in an ordinary landscape view, or in a portrait. We have been endeavoring to get a lens that will cover five degrees, and we have not got anything that will give us absolutely sharp results for five degrees. I am willing to answer any questions.

A member. Do I understand you to speak of placing the sensitive plate inside of the visual focus nearer to the lens?

Mr. Clark. Yes, sir.

A member. Will that give sharper results?

Mr. Clark. That is the theory of the thing. It will not with all lenses. But they should be corrected so as to give that result. It would be a great deal better to put it inside.

A member. I did not know but you said it would increase the sharpness with any lens.

Mr. Clark. No.

Mr. Ranger. Do you mean that the chemical focus works better by being inside the other lens?

Mr. Clark. Yes, sir. The color is so corrected that you get your best visual focus by setting it inside. It is more under-corrected than the ordinary photographic lens.

Mr. Ranger. Then the way that you employ it in astronomical photography is to have the chemical focus inside the visual?

Mr. Clark. Yes, sir; we get at the focus by trial.

A member. Do you mean that the lens that is under-corrected for a chemical focus is likely to be a better lens than if it were corrected?

Mr. Clark. No, I do not mean that. I do not think you put the question exactly right.

The same member. Perhaps not. Some years ago I had occasion to use an old Harrison lens in which the visual and chemical focuses were different. It gave a much better result than another one of the same size that was corrected.

Mr. Clark. Then your glass was inside the visual focus, was it not?

The same member. Yes.

Mr. Clark. It must have been.

Mr. Ranger. I have had some experience, and have had cases where I think the difference between the visual and chemical focus would be at least one-sixteenth of an inch, perhaps nearly one-eighth.

Mr. Clark. What is the focus of your lens?

Mr. Ranger. I do not remember. Perhaps 8 to 10 inches. A lens of that kind will give a better image than you could get where the visual and chemical focuses were corrected.

Mr. Clark. Could you tell whether the plate was outside or inside the focus?

Mr. Ranger. Inside.

Mr. Clark. I think you will find that so always. If I were to go into the market to buy one, I would take one where they did not agree.

Mr. Ranger. I have thought many times whether lenses would not be better in that way, or whether some of the power of the lens was not lost by making cor-

rections as they are now demanded where the chemical and visual lenses are on the same plane.

Mr. Clark. If I had a blackboard I could illustrate that better.

Mr. Carbutt. Many years ago I had a Voigtländer lens. With that, the lens was turned in according to the size of the image. If you are making a very large image on ground glass, you have to turn more than you would if you were making a smaller image on ground glass.

Mr. Clark. I have heard of that before, but I have never seen one. Mr. Lewis M. Rutherford, of New York, has done a great deal of very nice astronomical photography, and he has photographed other things a great deal. He told me at one time that when he had done the best he could to correct his glass for visual purposes, he put on a third lens of flint glass, and he had to shorten the focus about one-tenth. That made it, of course, what we would call very much under-corrected, and I think he was the first man—I am sure he was the first man—that made a third lens for photographing. Then I asked of him how it was with the ordinary photographic lens. He said he had tested them thoroughly, and he said it was just half way between. But these new plates, the dry plates, work rather into the blue and up into the green than the wet plates did. So the visual and chemical focuses come nearer to coinciding than with the wet ones, if I understand. Do you know, Mr. Carbutt?

Mr. Carbutt. I do not think they do on account of the thickness of the film. They may on account of the chemical composition.

Mr. Clark. That is what I mean. It is moved right along in the spectrum. With the collodion plates, it is very difficult to get any action at all beyond the blue. They do with these dry plates.

Mr. Carbutt. Will Mr. Clark please explain to the members here the difference between the visual and chemical focus in his telescope at Lick Observatory for taking photographs of the moon?

Mr. Clark. He has asked me a question that I cannot answer, because I never tried the instrument with the photographic lens on as a visual telescope. I do not know where the focus would come as a visual telescope. All I can say is that it would fall outside. But we had to shorten the focus upon that telescope from the visual telescope, well, between five and six feet. But then that was done with a third lens.

Mr. Carbutt. That is what I had reference to.

Mr. Ranger. What is the length?

Mr. Clark. Fifty feet for the photographic and fifty-six for the visual. Diameter of the lens, thirty-six inches.

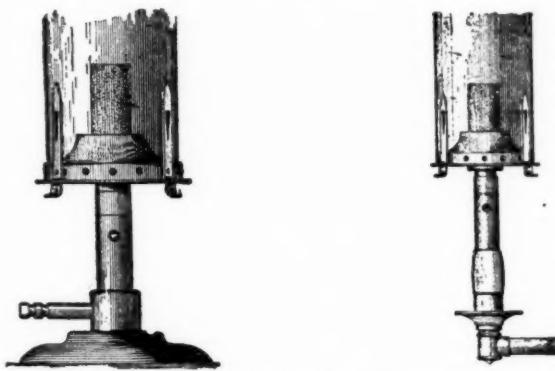
Dr. Eliot. While we are talking about the subject of lenses, I would like to ask Mr. Clark what the influence of the new Jena glass will be?

Mr. Clark. That is another question that I cannot answer. There is no doubt but that this man Schott—I cannot pronounce his name; I always call it shot-gun, it looks so much like it—there is no doubt that he has produced some glasses of crown and flint that give a correction that has a rationality reducing the secondary spectrum enormously. I have no doubt that in a photographic lens made of that glass the visual and working focuses would coincide nicely. But what I have seen of it personally has not been of good material. I could not use it. I hope they may turn

out something in large discs good enough for our astronomical telescopes, but I have never seen any as yet. I have read with a good deal of interest the paper that Dr. Hastings has written on the subject. But some of them tell me that this glass is perishable. It does not do for us to make a large glass of a material that is perishable.

Adjourned.

THE SODIUM LAMP FOR DARK-ROOM ILLUMINATION.



THE extreme sensitiveness of the gelatine plate was manifest to the photographer immediately on its advent. It was found that the illumination in the dark-room sufficiently safe for wet plate manipulation at once caused an invasion of fog, and so the yellow envelope papers, used to screen out the white light, were, at the earnest recommendation of the dry plate makers, covered over with a sheet of dark ruby glass, which shut out a great deal too much light, but saved the plates and delighted the dry plate manufacturers.

But photographers very soon found that the new state of things was far from pleasant, to say nothing of the ill effects of the red light upon the eyesight. Complaints were made that the ruby light caused a gum secretion on the eyes, and even some accused it of producing vertigo.

Still the ruby light held the field, and still holds, simply because photographers, like other people, are averse to change, and are apt to look askance at any proposed amendment.

Of course the invasion of fog was too potent a reason to be resisted. Why, then, should there not be a change? But the slow injury to the eyes does not urge so persistently the liability to dangerous results.

But we think that if it were known to photographers that there was a light for the dark room more agreeable to the eyes, more diffusive in its action, and just as safe as ruby light, there would be but little hesitation in its adoption. Our modern dark-rooms have too little light for convenience, to say nothing of comfort of the worker.

Recently we visited the studio of a well-known Philadelphia photographer, and were invited into his dark-room during the development of a plate. Immediately after the door had been closed we were surprised to see him open the holder and expose the plate to a light which we were sure would cause fog. We inquired what plates he dared to hazard. He smilingly replied, "Cramer's 30 and Seed's 26," but added by way of explanation, "Oh, this light is perfectly safe."

The dark-room was flooded with a soft illumination, and every object could be distinctly seen. To be sure, he did not keep the plates close up to the source of illumination, for there was no necessity of such a proceeding. We found that the illumination was produced by the flame of a sodium lamp, or, as it is called by the manufacturers, H. G. Ramsperger & Co., the Aladdin Dark-room Lamp.

It has long been known that salt thrown into the wick of a flame produces yellow light, but this light is mixed with blue and green rays.

Sir David Brewster was the first to construct a sodium lamp capable of giving considerable illumination, but he did not make it for any photographic purpose. Nevertheless it is strange that the photographers should not have introduced it long ago for a dark-room lamp. However, photographers now have an opportunity of availing themselves of the bromochromatic yellow light, which is quite as safe for delicate gelatine work as the ruby light, several times as powerful, and a hundred times more agreeable to the eyes. There is no smoke, no odor, and no complicated apparatus. It is a simple lamp, easily managed. No turning of the wick is needed, as the wick gradually consumes itself as it is raised. It comes in two forms, for table and for attachment to the wall. The lamp burns for a couple of hours before any perceptible decrease in the strength of the light takes place.

This most excellent amelioration of the dark-room inconveniences demands the attention of every photographer who regards his health, comfort, and good temper.

THE APPLICATION OF PHOTOGRAPHY TO SURVEYING.

IT has generally been supposed that the function of the photographic camera was to produce a pleasing picture, and about the only applications of photography to the record of scientific observations have been in the study of some astronomical phenomena, such as eclipses, transits, and the like, and to some branches of microscopy. Recently some very fine work in spectrum photography has been done by Prof. H. A. Rowland, of Johns Hopkins University, as the recent photographic exhibition in Philadelphia gave evidence, but with these exceptions the ideas of photography and picture making have generally been accepted as synonymous.

At the same time there has been a continuous effort in Europe within the past twenty years to adapt the camera to uses in topographical work, and the so-called science of *Photogrammetry* has reached a point where it may fairly be considered to be past the experimental stage. A number of papers upon the subject have appeared in various photographic and engineering periodicals, mainly written by French and German engineers, and now we have a treatise upon the subject of Photogrammetry from the pen of Dr. C. Koppe, of the Technical High School of Braunschweig, which contains much interesting matter.

Without attempting to enter into an entire translation of the work, which will doubtless be accomplished should it be demanded, it is at least desirable to give a general account of the method and the apparatus as described by Dr. Koppe.

Practically, Photogrammetry consists in a method of translating the perspective view which is made in the camera, into an orthographic projection upon a known and definite scale with sufficient accuracy to answer for the purposes of a topographical survey, and the method is based upon the following principles.

The position of the plane of the picture with regard to the point of sight must be accurately known, and the angles subtended by the various points in the picture must be capable of accurate measurement. The operation is practically a reversal of the methods of geometrical perspective, for instead of constructing a perspective picture from plane projections, Photogrammetry aims to obtain the plane projections from the photographic perspective.

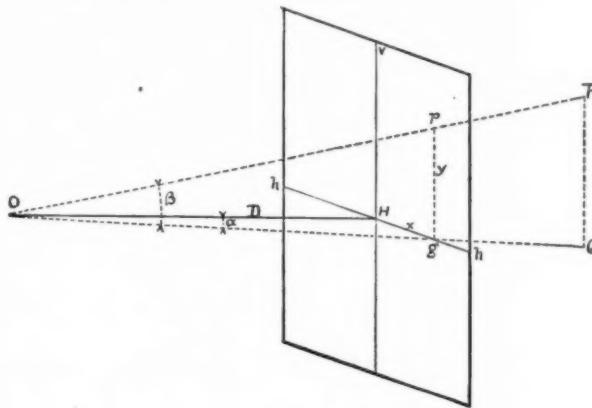


FIG. I.

In Fig. 1, let O be the point of sight, OH a perpendicular from O to the plane of the picture, I, and hh the horizon of the picture, OH being at right angles to hh and both being horizontal. If now from any point, P, a ray be drawn to O, it will pierce the plane of the picture in p, and by dropping the perpendicular pg, and joining go, and taking H as the origin of a system of rectangular co-ordinates, we may determine the following relations.

Calling α , the horizontal angle GOH, between the horizontal projection OG, of the ray OP, and the axis OH, we have $\tan \alpha = \frac{Hg}{HO} = \frac{x}{D}$, and the vertical angle POG, $= \beta$, gives in the same manner $\tan \beta = \frac{Pg}{Og} = \frac{y}{D : \cos \alpha}$, D, being the distance OH, and x and y the rectangular co-ordinates as given in the illustration.

By drawing the line HO, $= D$ (Fig. 2), at right angles to the horizon hh, and joining the foot g, of the ordinate, with O, and by erecting the line gp' $= gp = y$, perpendicular to go, and joining P' with O, we have the angles goH, $= \alpha$, and goP' $= \beta$ as the horizontal and vertical angles for the point p, by graphical construction.

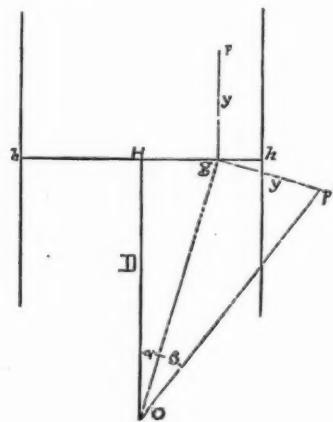


FIG. 2.

The direction of OH is supposed to be known, and when the angles α and β are given, the direction of the line OP is fully determined, and in a like manner any point in the picture may be determined.

The line OH corresponds to the optical axis in a telescope.

Suppose now two positions taken successively, I and II (Fig. 3), from opposite ends of a base line, $O' O''$ (Fig. 4), and let b' and b'' be the projections of the signals at each end of the line on the respective plates, then the direction of the optical axis of the photogrammetrical apparatus to be determined by these signals.

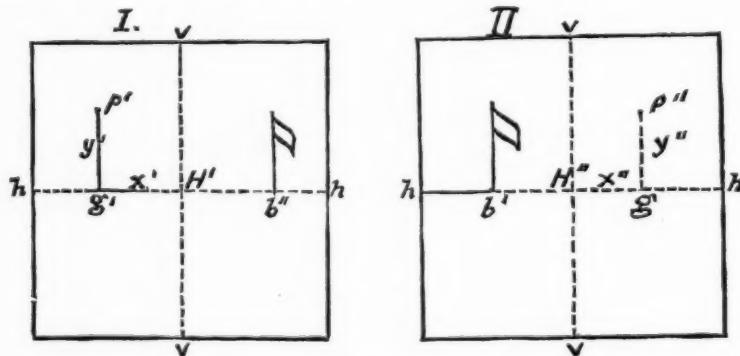


FIG. 3.

In order that the projections p' , p'' , of any point P, of the picture may be determined with regard to the base line O', O'' , it is necessary to know the distance O', O'' , and the angles α' and α'' , which the optical axes make with the base line, as well as the distances D', D'' , of the planes from O', O'' . Then by having the points b' and b'' , in which the planes intersect the line O', O'' , and by keeping

them at the same time perpendicular to $O'H'$, $O''H''$, the orientation may be accurately effected.

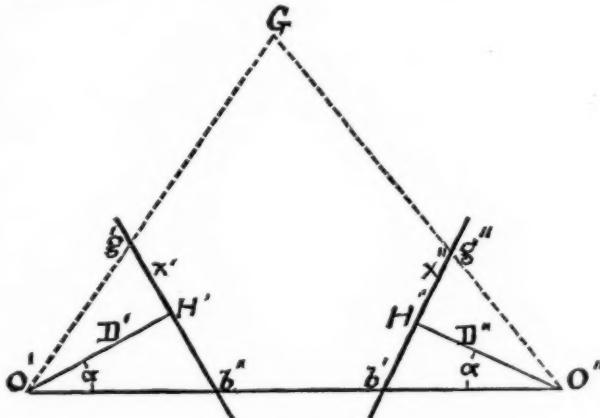


FIG. 4.

Taking now from I the abscissa $H'g' = x'$ of the point p' and from II the abscissa $H''g'' = x''$, and using them to determine the points $g' g''$, in Fig. 4, and then by joining $O'g'$ and $O''g''$, and prolonging them till they intersect in G, we have determined G as the horizontal projection of the point P.

As the vertical ordinate y' depends upon the vertical angle β' , so $O'G \tan \beta' = V' =$ the difference in height between P and O' ; and in like manner $O''G \tan \beta'' = V'' =$ the difference in height between P and O'' , and the true height of the point P will be known when the difference in level between the two stations is given. Instead of working with the vertical angles and their tangents, it is more convenient to obtain the values of V' and V'' by proportion, as may be seen from the similar triangles in Fig. 1, which give $PG = \frac{Pg \cdot OG}{Og} = y \cdot \frac{OG}{Og}$

The double determination of the height of the point P makes it possible to check the accuracy of the work, and the agreement of both distances is a satisfactory proof.

The construction of the diagram in Fig. 4 only gives the proportion between the abscissæ x' and x'' , and the distance D', D'' , but in the actual construction of the drawing they may be taken to a double, triple, or any scale that may be found convenient.

In a similar manner it is possible to determine the true location of any point by knowing its projections upon two photographic planes taken at the extremities of a standard base line, even when the plane of the picture is not at right angles with the horizontal plane upon which the plan is to be made, provided the inclination of the optical axis is given.

Dr. Koppe has gone into these details very fully in his book, and has also verified the accuracy of the method by comparison with other means of measurement, and by giving practical examples of the work.—*Mechanics.*

(To be continued.)

**VARIOUS PHOTOGRAPHIC PROCESSES FOR COPYING LINE DRAWINGS
ETC.**

(A Communication to the London and Provincial Photographic Association.)

WHEN I promised your esteemed Secretary (Mr. Bridge) that I would come to give a demonstration before your Society, I think I made that promise rather rashly, not thinking at the time to whom I was coming, and whom I was about to demonstrate, and that there were gentlemen in this Society to whom *I* ought to look for instruction and advice instead of coming to attempt to teach them. But this particular branch of photography, viz., the copying of line subjects, may be new to some of you, and as a considerable portion of my time is occupied in this particular branch, I thought it would not be out of place to show you some of the work I have already done, and also my mode of procedure in doing it.

I may say at the outset that I do not prepare my own paper, as this can be obtained ready prepared from several photographic dealers, whose names I shall mention later on; but those who wish to prepare their own will find several formulae in the Photographic Annuals. It is not my intention to-night to advertise any particular process, but shall leave you to judge which you think the most suitable.

There are various methods by which maps, plans, tracings, etc., can be copied. First, there is the "Ferro-prussiate" process, by which copies can easily be obtained from a tracing. The operations are the most simple of any process known. After printing, the copies are merely washed or fixed in clean water, producing white lines on a blue ground. The face of the drawing is placed against the glass of the printing frame, and the prepared paper is then placed on the back of the drawing. It is advisable that the paper should be somewhat larger than the drawing, so as to leave a margin exposed to show the action of the light upon it. The exposure required in very bright sunshine varies from five to fifteen minutes, but in the very dull days of winter it may require two or three hours, or even a whole day. During the exposure to light the paper assumes various tints, from greenish blue to olive. When the exposure is complete the print is taken from the printing frame, and immersed in clean water until the lines become purely white. The time required for washing occupies from five to ten minutes, but if warm water be used the result is obtained much quicker. Over-washing reduces the intensity of the blue ground, but the copies darken somewhat in drying. If a line or figure has been left out by mistake on the original drawing before being copied, the same can be produced upon the printed copy by using a solution of soda and water.

The greatest drawbacks to this process are the length of time occupied in printing, and the ground being blue, which makes the copies unsuitable for coloring. Copies, however, can be obtained with blue lines on a white ground by this process, but a negative has first to be made. The negative print to produce this result requires at least three or four times the exposure by which white lines on a blue ground are produced.

Very pleasing pictures can be made by amateurs who may wish to make a fanciful experiment by printing from negatives on this paper, which can be obtained, ready prepared, from Marion & Co., Sohosquare, London, and Messrs. Bemrose &

Sons, London and Derby. Those who desire to prepare their own paper can do so by the use of the following formula :—

A.

Ammonia citrate of iron 1 part.
Water 5 parts.

B.

Ferricyanide of potassium 1 part.
Water 4 parts.

Mix together in equal quantities.

BLACK LINE PROCESS.

I now come to a process which is more suitable for coloring purposes than the latter, whereby black lines on a white ground are produced. The exposure required in this process is considerably less than the ferro-prussiate. The operations are as follows :—

The drawing to be copied should be on a very transparent tracing paper or cloth, of a white or bluish tint ; care, however, should be taken to make the lines of the drawing uniformly black, and not too fine, as the lines on the copy are rendered somewhat finer. Place the drawing in the printing frame with its face to the glass, then over it lay the sensitized paper. It is advisable that the paper should be somewhat larger than the drawing, in order to leave a margin exposed to show the action of the light upon it. The exposure is complete when the ground of the sensitized paper, which is yellow, has become a pure white, and a distinct copy of the original appears in dark yellow lines. To develop, remove the copy from the printing frame, and immerse in a gutta percha lined bath containing the acid solution, prepared as follows :—

Gallic acid, 1 part.
Citric acid, 1 "
Alum, 8 parts.

Take one and a quarter ounces of the above to one gallon of water. This should be mixed in another vessel the same day it is used. Allow the copy to remain in the solution until the lines are deep black. The same solution can be used over again for several prints, or until it becomes quite black. After development the copy must be thoroughly washed in clean, cold water, frequently changed, and then hung up to dry.

BLUE LINES ON WHITE GROUND ; OR, PELLER PROCESS.

The next process I wish to describe is, perhaps, more difficult and complicated than either of the two already mentioned, but its advantages are many ; it can be worked in all weathers, and requires no dark room. The copies can be colored and varnished, altered and corrected ; and last, but not least, they do not fade. This process is ten times quicker than any other, was invented by a well-known French chemist, M. Pellet, and was introduced into England by Mr. G. E. Chapman, 69 Victoria-street, Westminster, who is the sole licensee.

The instructions are : Place the drawing to be copied in a printing frame, and upon it a piece of the prepared paper, close the frame, and expose to the light. The exposure can only be determined by constant practice and test slips. These test

slips should be placed in the printing frame alongside the tracing which is being copied. These small test slips are inserted so as to remain about two-thirds inside and one-third outside the frame at the back. They can then be conveniently drawn out without opening the frame or disturbing the print.

After a time one of the test slips is drawn out and dipped in a saturated solution of yellow prussiate of potash, and its chemical action watched for from forty to fifty seconds. Should the background remain perfectly yellow, and the lines come out dark blue, the exposure has been sufficient. It is not necessary to develop the copies immediately after exposure, therefore all the printing might be done while the light is strongest (especially in winter), leaving the development until the evening or the following day. When the copy is to be developed it should be placed face downwards on a smooth board, and the edges turned up carefully, so as to form a sort of tray, three-quarters of an inch in depth. This renders the sheet more easy of manipulation, keeps stains from the back, and renders it white when developed in the prussiate bath.

The copy is now placed face downwards and floated on the prussiate bath for about thirty seconds. The operator should see that uniform contact takes place everywhere while in the solution. Raise the copy, inclining it to allow the solution to drip off one corner; then notice particularly how the lines seem to stand out.

If they do stand out, and the ground remains perfectly yellow, the development may be considered complete. After development the copy is immersed in clean water in order to check the further action of the prussiate, and then immersed face upwards in the acid bath of a ten per cent. aqueous solution of hydrochloric acid, care being taken that the entire copy, both front and back, is saturated. The surface of the copy should be worked all over carefully with a soft brush, to loosen the mucilage. The copy is next placed face upwards in an empty tray, and again well brushed, to get rid of the superficial mucilage, being flushed copiously at the same time with water both back and front, so as to remove all traces of the previous chemical solution.

Any blue stains on the copies may be removed or alterations made by the use of the blue solving supplied with the paper. Any blue stains on the hands may also be quickly removed by a very weak solution of hydrate of sodium. It is essential that the contents of the two chemical baths do not get mixed, or blue stains will appear. To prevent this, it is advisable to well rinse one's hands in clean water after each operation.

COPYING DRAWINGS BY THE AID OF A CAMERA.

Mechanical drawings are sometimes required to be reduced by the aid of photography with the camera. I may say the best results are to be obtained by the wet or collodion process, but very good negatives can be secured with a dry plate if properly managed. The greatest drawback with the dry plate is the probability of the fine lines on the drawing becoming clogged or veiled over during development.

But I have seen an excellent developer mentioned in *The British Journal of Photography* a few months ago, which I have tried with excellent results. It may not, perhaps, be out of place to give it here for the benefit of those who, like myself, have sometimes line subjects to copy:—

Carbonate of potassium	360 grains.
Sulphite of sodium	360 grains.
Water	6 ounces.

To each ounce of developer two drachms of this solution, together with thirty or forty minims of the ordinary ten per cent. solution of pyro (and sulphite) are added. The mode of development found to answer best is to soak the plate first of all in gallic acid solution (two grains to the ounce) for a half minute or so, and then transfer it direct to the developer, where in about another half minute the image begins to appear. Watch carefully, and when the details in the darkest part of the picture acquire tolerable strength, add five minims of a sixty-grain bromide solution, and proceed until sufficient density is acquired.

Should matters hang fire at all, a few drops of the ordinary dilute ammonia solution may be added to freshen up the developer, but this is rarely needed if the exposure has been correct.

On the latter point a word may be said. Though the use of gallic acid does not necessarily lengthen the exposure required, it has been found better to give more than is absolutely necessary. Thus, if five seconds be sufficient to produce a perfect image under ordinary circumstances, give ten or even fifteen. The result will be quicker development and less necessity of forcing, and hence less chance of fog, stain, or filling up the lines. Six times the normal exposure has not produced any signs of the plate being overdone; indeed, it seems next to impossible to produce such a result when the gallic acid is employed in the manner described.

THOMAS SCOTTON.



LITERARY AND BUSINESS NOTES.

THE Exhibition of the Photographic Society of Great Britain for 1889 opens September 30th, and will continue until November 13th. It will be held in the Gallery of the Royal Society of Painters in Water Colors, 5 A Pall Mall Street, E. London, S. W.

Foreign exhibitors are especially invited to contribute to the exhibition. The Society will pay the charges on photographs one way, also provide frames during the exhibition for photographs approved by the judges, and there will be no charge for wall space.

Blank entry forms, and any further information respecting the exhibition, can be obtained from the Association Secretary, Edwin Cocking, 5 A Pall Mall, E. London, S. W.

THOMAS BOLAS, sometime Editor of the *British Photographic News*, has now dissolved all connection with this widely known periodical, and has undertaken the management of a new weekly, entitled, *The Photographic Review*. Mr. Bolas has given abundant evidence of his ability as a photographic editor, and we are sure the new enterprise will be conducted so as to make it valuable to all interested in photography.

WE have received the first number of a new photographic journal published in the French language, at Geneva, Switzerland. It is the organ of the Photographic Society of Geneva, the Society of Lausanne, and of the Society of Zurich, and is entitled, *Revue Suisse de Photographe*. The initial number is a most excellent one, both in contents and typography, and the phototype illustrations, of which there are several, are amongst the best work of the kind. This journal gives promise of success.

THE credit for producing the beautiful flash-light photographs of flowers of the Night Blooming Cactus referred to in our last number, should be given to Mr. Edward T. Bradway, and not to Mr. John Bradway.

We also failed to mention that the series of Johnstown pictures, spoken of in the same number, were made by Mr. William H. Rau, of Philadelphia.

WE have received a number of excellent portraits and home groups, taken by Mr. Frank H.

Ott, of Wood's Gallery, Towanda, Pa., with Blitz-Pulver. This branch of photography is gaining more and more popularity. The facilities for obtaining excellent results make it the favorite with both photographer and patron.

MR. JOHN CARBUTT is ever on the alert with photographic novelties.

Carbutt's Flexible Positive Films furnish a new form of artistic photographs.

The sample presented us, possesses a beautiful finish and a richness which will at once make the film popular.

The manipulation for producing these portraits is nothing different from that employed in making transparencies.

Mr. Carbutt recommends the following:

CARBUTT'S HYDROQUINONE DEVELOPER.

A

Warm distilled Water	20 oz.
Sulphite Soda Crystals	4 oz.
Sulphuric Acid	1 drachm
Hydroquinone	360 grs.
Potassium Bromide* (60)	30 grs.
Water to make up to	30 oz.

B

Caustic Soda in stick	1 oz.
Water to make 30 oz.	

C

ACCELERATOR.

Caustic Soda	1 oz.
Water to make 10 oz.	

D

RESTRAINER.

Bromide Potass.	½ oz.
Water	5 oz.

DEVELOPER.—Take of A 1 oz., Water 2 to 4 oz.—the first for instantaneous and short exposures, and the latter for time exposures. For Lantern Transparencies, 1 oz. A, 1 oz. B, Water 4 oz., D ½ drachm.

TASCHEN NOTIZBUCH FÜR AMATEUR PHOTOGRAPHEN, By Ludwig David and Charles Scolik. Published by William Knapp, Halle. (A. S.)

This pocket note-book is the most complete of the kind we have seen. Aside from the most convenient memoranda blanks for jotting down

* For positives use 60 grs. Bromide, A 1 oz., B 1 oz. Water 3 oz. I find it best to fix the image first, then rinse and place in alum bath.

photographic experiences, it contains much valuable information for manipulation, conveyed in a concise but clear manner, and from direct personal experience. It would be invaluable for the photographer tourist, for whom it seems especially designed.

The book is furnished with a pocket containing a perforated sheet of gummed numbers for registering plates, and also a thin sheet of yellow gelatine, to supply disks for placing in the diaphragm slit, when exposing orthochromatic plates.

SIGNOR CORSI, president of the new society formed in Florence, in an address to the members said that he believed the real honor of the invention of photography belongs to Niepce, instead of Daguerre. We are sure Signor Corsi is mistaken, inasmuch as Niepce himself acknowledged the right of Daguerre. A correspondence between M. Niepce and M. Daguerre proves that to the latter is due the sole merit of the discovery of the process which bears his name.

In 1831 and 1832 M. Niepce says, in a letter, that he regrets having lost so much time in taking the advice of Daguerre to use iodine.

"I repeat it, sir," he says, "I do not see that we can hope to derive any advantage from this process more than from any other method which depends upon the use of metallic oxides."

We give one of the letters in full, which is convincing enough of the claims of Daguerre.

LUZ, Nov. 1st, 1837.

My dear Daguerre:

You will doubtless, my dear friend, have been more fortunate than I, and very probably your portfolio is by this time enriched with the most beautiful designs! What a difference also between the method which you employ and the one by which I toil on!

While I require almost a whole day to make one design, you—you ask only four minutes. What an enormous advantage. It is so great, indeed, that no person, knowing both methods, would employ the old one.

This reflection makes me feel less painfully my own want of success: for though the old system might be described as the result of my father's labors, to the perfection of which you equally contributed, it is certain that it could not become the exclusive object of a subscription.

Therefore I think we should content ourselves with simply mentioning it, in order to make both methods known, for of the two yours alone will obtain the preference etc., etc.

(Signed) FREDERIC NIEPCE."

PYROCATECHIN DEVELOPER has not yet become popular, owing to the high price of the chemicals, nor do the results obtained on under-

timed plates seem satisfactory. Those who have tried it claim that the negatives produced are of a fine gray color, suitable for printing, and that there is no danger of fog. It is also said to be a clean developer, leaving the hands perfectly immaculate.

A METHOD of photo-engraving direct on wood is announced from Russia. The wood is boiled in a solution of sulphate of copper, and afterwards in a solution of carbonate of soda, which fills the pores with insoluble carbonate of copper. The block is then dried, its face highly polished, and the sides and back coated with an asphalt varnish. The face is coated with bichromated gelatine and after printing is developed with warm water, as in the carbon process. A coat of asphalt varnish, carefully applied, adheres only to the portions from which the gelatine has not been removed. The block thus protected with varnish is placed for an hour in strong nitric acid, and then for an hour in strong sulphuric acid. When taken from the acid the unprotected parts of the wood will be found to be eaten away, and the block may be cleaned by rubbing with a hard brush. The varnish on the face is removed by soaking in benzine, and the block is at once ready to print from. While this process may be satisfactory for reproducing diagrams and coarse line drawings, we would point out that for any fine works, printing on paper and transferring to the block, so that the print may be developed from behind, would be far more likely to give clear and perfect results.—*The Photographer's World.*

THE badge presented to the members of the Association was excellent in design and finish, but as far as we are able to judge the likeness of Daguerre was not so good as that engraved upon the medal given by the *Photographic Times*.

THE excursion of the Association, which took place on the Saturday after the close of the Convention, will be remembered for a long time by all who availed themselves of the generous transportation. The Committee who designed this pleasure are entitled to much praise. The Committee consisted of the following: J. Wilton Hare, Wilfred A. French, John Stalker, William Webster, W. Partridge, C. F. Conly, G. W. Smith.

THE visitors at the Tenth Convention at Boston who failed to receive the beautiful Daguerre

medal distributed so freely by the *Photographic Times* of New York City certainly missed the choicest souvenir given by anyone.

It is a large bronze medal, executed in a most excellent manner, showing on one side a head of Daguerre in bold relief, and on the reverse the inscription, "Souvenir of the Semi-Centennial of Photography, August, 1889."

The souvenir by the Grundlach Optical Company was also much prized. It consisted of a number of excellent photogravures by the Photo-Gravure Company, of New York, from negatives made with the Grundlach lenses. The technical qualities of the pictures gave evidence of the virtues of the lenses, and the artistic features to the taste of the Company.



AUGUST BARGAIN LIST.

Accessories:

1—9x11 Glass Bath and Dipper	1 80
1—Packard Rock	3 00
1—8x11 Exterior Background, light right	8 00
1—Card size Burnisher	3 00
1—Cameo Press	1 00
1—Pharaoh Chair	5 00
1—Rustic Wood Chair	5 00
1 copy Photo Mosaics for 1881, in cloth	50
1 copy Photo Colorists' Guide,	75
1 copy About Photography and Photographers	50
British Journal Almanacs for 1889, reduced to	40
1—15-in Entrekin Rotary Burnisher	17 00
1—15-in Entrekin Eureka Burnisher	15 00
1—Lever Camera Stand for 14x17 Camera	10 00
1—Fuming Box	4 00
1—15x18 Deep Porcelain Tray	3 00
1—15x18 Japan Tray	50
1—Iron Centre Camera Stand,	3 00
1—14-in Eureka Burnisher	16 00
1—Seavey Swiss Cottage Accessory	12 00
1—8x10 Exterior Ground, good condition,	10 00
2—Spencer Head-rests	11 00
British Journal Almanacs for 1878 Photo Mosaics for 1883,	20 20
1—8x10 Plain painted ground	3 00
1—8x10 Osborne's interior background, new, light left	20 00
1—4x8 Osborne's side slip	7 50
Pearl leads, the best retouching point in the market, each	15
5x8 Woodbury Dry Plates PER DOZ. 80	
4 1/4 x 6 1/2 " "	65
6 1/2 x 8 1/2 Triumph "	85
5x7 " "	55
4 1/4 x 6 1/2 " "	45
5x8 Neidhardt "	65
4x5 Bridle "	35
1—8x10 Hough's Exterior ground, good as new, light left of sitter	9 00
1—8x10 Hough's Exterior ground, light right	8 00
1—Hough's Oak Stump	7 50
1—Osborne's No. 71 Rock Accessory	9 00

1—Osborne's Bridge Accessory	8 00
1—Osborne's Gate Combination Accessory, new	18 00
1—10-in Entrekin Accurate Rotary Burnisher, good as new	15 00
1—Knickerbocker Camera Stand, with Acme top	5 00
1—6x6 Children's Fancy Ground	3 00
1—15 inch Smith & Pattison, Quadruplex Enameler,	25 00

Camera Boxes:

1—11x14 Copying Camera and Stand	30 00
1—Gray's Vest Camera	9 00
1—Woodward Solar Camera, 7-in. condensing lens and $\frac{1}{2}$ size Voigtlander lens	25 00
1— $\frac{1}{2}$ size Ferro. Camera, 4 $\frac{1}{2}$ tubes and stand	10 00
1—4x5 Flammang revolving back Camera, lens and tripod, new; reduced from \$37 to	25 00
1—17x20 American Optical Co.'s Double Swing Portrait Camera, Bonanza Holder, good as new	75 00
1—5x8 Blair View Camera, single swing	17 00
1—Climax Outfit, including chemicals, complete	3 50
1—17x20 D. S. View Camera, good condition	40 00
1—5x8 Tourist Outfit, including 5x8 Tourist Camera Box, 2 Daisy Plate Holders, 1 Extension Tripod, and 1 Canvas Carrying Case, very little used. Price, new, \$40.50, will sell for	30 00
1—10x12 Cone View Camera, Double Swing, new	52 80
1—5x8 Wet Plate Stereo Camera, 3 holders, case and tripod	25 00
1—6 1/2 x 8 1/2 View Camera and Lens	12 00
1—6 1/2 x 8 1/2 American Optical Co. first qual. View Camera	23 00
1—4 1/4 x 5 1/2 Ex. qual. Portrait Camera	17 50
1—5x8 American Optical Co. Stereo Camera	25 00
1—5x8 Blair Compact Camera, good as new	35 00
4—5x8 Feather Weight Holders, each	75
1—No. 43 B, 8x10 Double Swing Anthony's Portrait Camera, with Benster Holder, good as new	25 00

1—8x10 Double Swing Cincinnati Portrait Camera	18 00
1—5x8 '76 View Camera, with lens holder, case and tripod	15 00
1—4x5 Anthony's View Camera, with lens, tripod, camera case and six double holders in good condition	16 00
1—½ size Wet Plate Camera, good for lantern slides . . .	2 00

Lenses :

1—4x4 Harrison Portrait Lens .	18 00
1—6½x8½ View Lens	3 50
1 set ½ Tubes	18 00
1—4x4 Harrison Portrait Lens .	20 00
1—11x14 Zentmayer Lens, with all the smaller combinations .	50 00
1—½ size Voigtlander Portrait Lens	12 00
1—Matched pair E. A. Stereo- scopic Lenses	8 00
1—14x17 Voigtlander Portrait Lens	60 00
1—No. 9, 11x14, Ross Portable Symmetrical Lens	60 00
1—11x14 Harrison Double View Lens	15 00
1—4x5 J. A. K. Single View Lens	2 00
1—Extra 4—4 Roettger Portrait Lens	20 00
1—2A Dallmeyer Lens	82 00
1—14x17 Roettger Lens	45 00
1—8x10 Beck Lens, good as new, fitted with Prosche Shutter .	60 00
1—set ¼ Darlot Tubes	13 00
1—4—4 Holmes, Booth & Hayden Portrait Lens	25 00
1—½ size Voigtlander Lens .	25 00
1—4x5 Dallmeyer View Lens .	12 00
1—½ size L. W. Krantz Portrait Lens	12 50
1—½ size C. C. Harrison Portrait Lens	8 00
1—½ size Darlot quick acting Portrait Lens, central stops .	18 00
1—No. 6, 17x20 Darlot wide-angle Hemispherical Lens	35 00

1—8x10 Voigtlander Portrait Lens	80 50
1—4—4 Dallmeyer Group Lens .	50 00
1—4—4 Walzl Portrait Lens .	20 00
1—¼ size Harrison Portrait Lens	5 00
1—2 Darlot Rapid Hem. Lens, for 5x8 views	20 00

CAUTION.—All persons are warned against a man passing under the name of F. J. Howell, who claims to be an agent of the AMERICAN JOURNAL OF PHOTOGRAPHY. This party has no authority to collect money for us. When last heard of he was at Lunenburg, Mass.

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